

# Use of Frequency Specific Microcurrent in Resolution of Deep Vein Thrombosis: A Case Report

Resonant  
Frequency  
Medicine

Physical Therapy &  
Frequency Specific  
Microcurrent



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## Background / Purpose

Venous Thromboembolism (VTE) ranks the 3rd cause of vascular mortality with one in four deaths worldwide. There is a data scarcity and no agreement on use of alternative electro-modalities such as Frequency Specific Microcurrent (FSM) for VTE. FSM is a non-invasive electrotherapy that has been utilized to support tissue healing and repair due to its role in collagen and protein synthesis, membrane transport, and ATP production. This case report demonstrated successful administration of FSM to support resolution of Deep Vein Thrombosis (DVT).

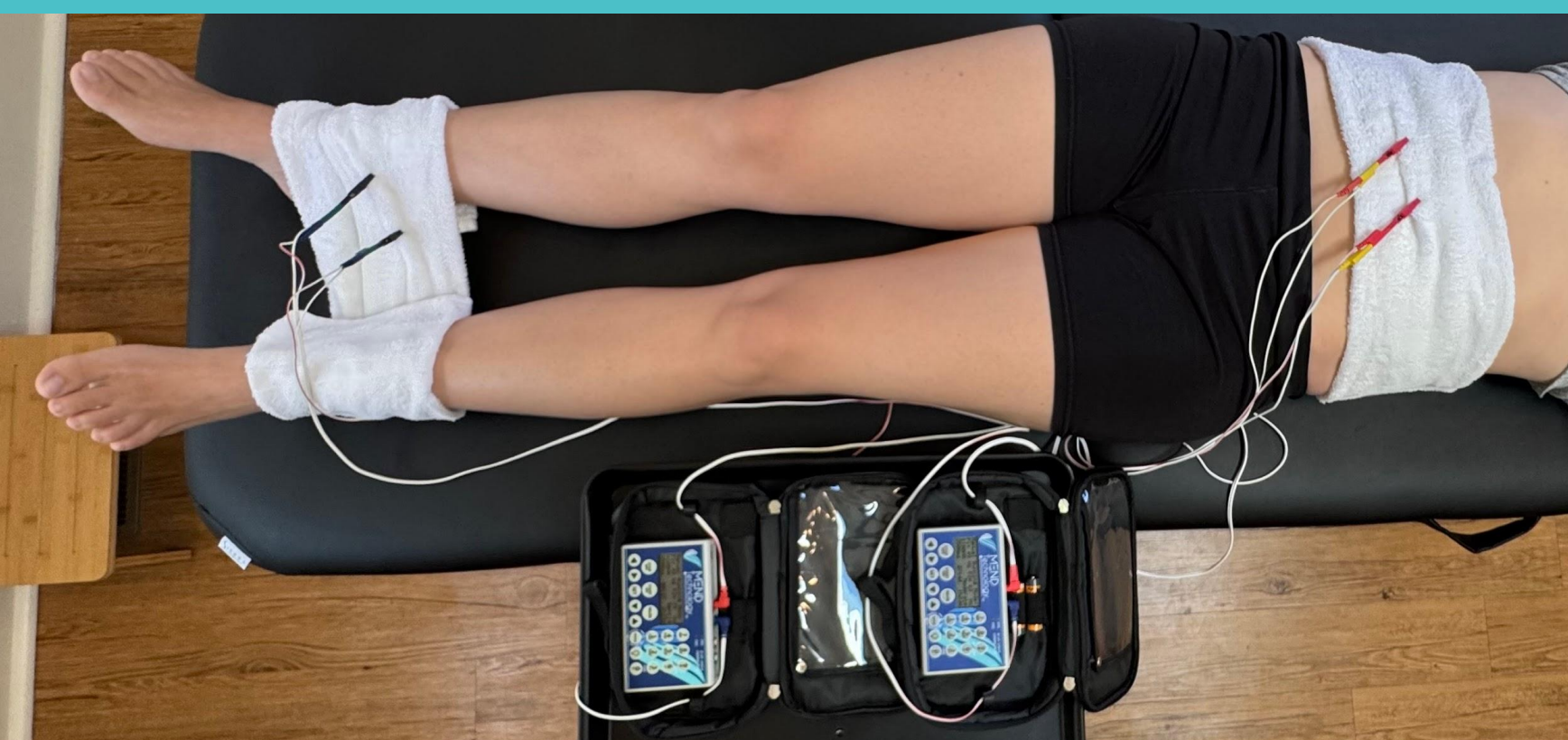
## Case Description

- A 51 year-old nonsmoking female presented for physical therapy (PT) having sustained a R distal fibula fracture followed by ORIF, complications of cellulitis, postphlebitic syndrome and gastrocnemius vein DVT.
- PMH included Mixed Connective Tissue Disease, Sjögren's syndrome and Covid-19 Dx seven months prior.
- Client reported for PT 13 days after ORIF ambulating with axillary crutches donning R ankle immobilizer, taking *enoxaparin sodium* as prescribed.
- Pre-treatment doppler ultrasound reported a 5 cm segment of gastrocnemius vein in the proximal mid-calf contained noncompressible occlusive thrombus.
- Client presented with mild nonpitting edema in RLE, mild erythema, limited active ankle ROM, pain ranked 3/10 and stiffness of 8/10.

## Methods / Intervention

- A single 90-minute FSM treatment using two-channel paired frequencies applied in a ramped square waveform at 100  $\mu$ A alternating current polarity via two AA-battery operated customizable MEND Professional™ frequency specific microcurrent devices.
- Pulsed electrical current was delivered via alligator clips connected to warm, moist towels, with (+) leads attached to the towel spanning the lower abdomen and (-) attached to a towel wrapped in a figure eight around bilateral ankles (Figure).
- Expert-recommended frequencies for *restore vitality* (49 Hz) and *repair torn/broken* tissues (124 Hz) were applied via Channel A, and the frequencies for the target tissues of *vein* (79 Hz) and *artery* (62 Hz) via Channel B were manually programmed into the microcurrent units for 60 minutes and 30 minutes, respectively (Table) (McMakin C, Frequency Specific Seminars, 2019).

## Treatment Setup



## Acknowledgements

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## Outcomes / Findings

- At conclusion of the 90-minute treatment session, stiffness reduced from 8/10 to 0/10.
- By end of session, reduced pain of gastrocnemius muscle palpation and with ambulation from 3/10 to 0/10.
- At the end of one session, Homan's Sign was negative.
- Plantarflexion AROM improved by 20° and dorsiflexion AROM improved by 10° by the end of the treatment session.
- One day post treatment, lab results reported a normal d-Dimer of 326 ng/mL (normal reference range for negative is 0-500ng/mL).
- One day post treatment, doppler ultrasound results reported no evidence of DVT present in the doppler, reading "*Thrombus in the gastrocnemius vein has resolved. No additional thrombus is seen.*"
- One day post treatment, client's Primary Care Provider stopped her Rx of *enoxaparin sodium*.

## Frequency Specific Microcurrent Parameters Used for this Case

Channel A	Condition	Channel B	Target	Microamps	Time
49 Hz	Restore Vitality	79 Hz	Vein	100 $\mu$ A	60 min
124 Hz	Repair Torn/Broken	79 Hz	Vein	100 $\mu$ A	30 min
Channel A	Condition	Channel B	Target	Microamps	Time
49 Hz	Restore Vitality	62 Hz	Artery	100 $\mu$ A	60 min
124 Hz	Repair Torn/Broken	62 Hz	Artery	100 $\mu$ A	30 min

## Discussion

Improvements observed in symptoms, functional outcomes, lab results and ultrasonography indicate that treatment with FSM utilizing specific frequencies may have contributed to the expedited resolution of this client's DVT.

However, client was taking anticoagulant therapy for 28 days, and FSM therapy occurred one month after the initial diagnosis of DVT which remained a 5 cm segment in size. Evidence shows most similarly-sized clots may resolve with only anticoagulant therapy in about 3-6 months of therapy.

These findings show potential benefits of the administration of FSM with specific frequencies in conjunction with anticoagulant therapy to expedite the resolution of a 5 cm noncompressible occlusive thrombus of the gastrocnemius vein proximal to mid-calf to almost 1 day post-application that was evidenced by doppler ultrasound, plus improvements in symptoms and functional outcomes.

## Conclusion

This case report suggests that the addition of FSM with appropriate specific frequencies to anticoagulant treatment successfully expedited the resolution of a 5 cm segment noncompressible occlusive thrombus of the gastrocnemius vein proximal to mid-calf. This finding warrants further clinical trials to investigate the physiological and clinical impacts of this alternative electro-modality to enhance resolution of DVT and shorten the overall recovery time. This modality should be explored further for potential prevention applications and reducing functional disability.

## Findings

Outcome	Before	After
Ankle PF AROM	35°	55°
Ankle DF AROM	0°	10°
Pain	3/10	0/10
Stiffness	8/10	0/10
Thrombus Size	5 cm	not detectable

## Disclosure

- Jessica Tierney, PT, DPT declares that this intervention session was a part of paid Physical Therapy appointment in an outpatient clinical setting.

## Funding

- None